

Number/Computation

Concepts - Students will describe properties of, define, give examples of, and/or apply to both real-world and mathematical situations:

MA-7-1.1.1 Integers, percents, fractions, decimals

MA-7-1.1.2 π (pi)

MA-7-1.1.3 Proportion

MA-7-1.1.4 Place value of whole numbers and decimals

MA-7-1.1.5 Positive whole number exponents to express large numbers (e.g. scientific notation)

MA-7-1.1.6 Fractions and decimals and their operations; percents and integers (including addition of integers) in a variety of equivalent forms

Skills - Students will perform the following mathematical operations and/or procedures accurately and efficiently, and explain how they work in real-world and mathematical situations:

MA-7-1.2.1 Add, subtract, multiply, and divide (fractions and decimals). Addition with integers. Find percentages of numbers

MA-7-1.2.2 Estimate and predict computational results using whole numbers, fractions and decimals

MA-7-1.2.3 Apply proportional reasoning and percents of a number (e.g. sales tax, discounts, tips)

MA-7-1.2.4 Identify and use prime numbers, composite numbers, prime factorization, factors, multiples, divisibility to solve problems. (e.g. prime factorization to determine LCM and GCF)

MA-7-1.2.5 Apply order of operations (+, -, x, / divide) exponents grouping symbols)

Relationships - Students will show connections and how connections are made between concepts and skills, explain why procedures work, and make generalizations about mathematics in meaningful ways for the following relationships:

MA-7-1.3.1 How whole numbers, fractions, decimals, percents relate to each other. (e.g., convert between forms of rational numbers, compare, order)

MA-7-1.3.2 How properties such as commutative, associative, and identities show relationships among operations and may be used to justify steps in solving problems

MA-7-1.3.3 How operations (squaring whole numbers and taking the square root of perfect squares) are inversely related

GEOMETRY/MEASUREMENT

Concepts – Students will describe properties of, define, give examples of, and/or apply to both real-world and mathematical situations:

- MA-7-2.1.1 Identify using correct notation, label, and name the basic geometric elements (segments, rays, lines, angles, and planes)
- MA-7-2.1.2 Define, give examples of, describe properties of two-dimensional shapes, including circles, regular polygons, quadrilaterals (square, rectangle, rhombus, parallelogram, trapezoid) and triangles (acute, obtuse, right, equilateral, scalene, isosceles)
- MA-7-2.1.3 Identify and describe properties of three-dimensional geometric shapes including spheres, cones, cylinders, prisms, (with polygonal bases), and pyramids (with polygonal bases)
- MA-7-2.1.4 Congruence, symmetry, and similarity
- MA-7-2.1.5 U.S. customary and metric units of measure

Skills – Students will perform the following mathematical operations and/or procedures accurately and efficiently and explain how they work in real-world and mathematical situations:

- MA-7-2.2.1 Identify characteristics (e.g. sides, vertices, angles, faces, edges, congruent parts) of two-dimensional and three-dimensional shapes.
- MA-7-2.2.2 Use appropriate tools and strategies (e.g., combining and subdividing shapes) to find measures of both regular and irregular shapes (polygonal shapes not requiring use of Pythagorean theorem as a strategy)
- MA-7-2.2.3 Move shapes in a coordinate plane: translate and reflect
- MA-7-2.2.4 Estimate measurements in standard units including fractions and decimals
- MA-7-2.2.5 Use formulas to find area and perimeter of triangles (not requiring use of Pythagorean theorem as a strategy) and quadrilaterals (rectangles, squares, trapezoid, rhombus), area and circumference of circles
- MA-7-2.2.6 Estimate and determine measurement of angles
- MA-7-2.2.7 Not assessed

Relationships – Students will show connections and how connections are made between concepts and skills, explain why procedures work, and make generalizations about mathematics in meaningful ways for the following relationships:

- MA-7-2.3.1 How measurements and measurement formulas are related or different (perimeter and area of rectangles)
- MA-7-2.3.2 Not assessed
- MA-7-2.3.3 Not assessed

PROBABILITY/STATISTICS

Concepts- Students will describe properties of, define, give examples of, and/or apply to both real-world and mathematical situations:

MA-7-3.1.1 Central tendency (mean, median, mode)

MA-7-3.1.2 Range, cluster

MA-7-3.1.3 Characteristics and appropriateness of graphs (e.g. double bar, line, histogram, circle) and plots (e.g. line, double stem-and-leaf)

Skills- Students will perform the following mathematical operations and/or procedures accurately and efficiently, and explain how they work in real-world and mathematical situations:

MA-7-3.2.1 Organize, represent, analyze, and interpret sets of data using tables, graphs (e.g. double bar, line, histogram, circle) and plots (e.g. line, double stem-and-leaf)

MA-7-3.2.2 Construct and interpret displays of data (e.g. tables, circle graph, line plot, stem-and-leaf plot, box-and-whiskers plot)

MA-7-3.2.3 Find mean, median, mode, and range; recognize clusters of data

MA-7-3.2.4 Calculate theoretical probabilities of simple events and tabulate experimental results from simulations

MA-7-3.2.5 Make predictions (e.g. fair and unfair games) and draw conclusions from statistical data and probability experiments

MA-7-3.2.6 Use counting techniques, tree diagrams, and tables to solve probability problems

MA-7-3.2.7 Represent probabilities in multiple ways such as fractions, decimals, and percents

Relationships – Students will show connections and how connections are made between concepts and skills, explain why procedures work, and make generalization about mathematics in meaningful ways for the following relationships:

MA-7-3.3.1 How different representations of data (e.g. tables, circle graphs, line graphs, bar graph, line plot diagrams) are related

MA-7-3.3.2 How theoretical probability and experimental probability are related

MA-7-3.3.3 How data gathering and misleading representations affect interpretations and conclusions about data (e.g., changing the scale on graph, polling only a specific group of people, using limited or extremely small sample size)

MA-7-3.3.4. How probability and statistics are used to make predictions and/or draw conclusions

Algebraic Thinking

Concepts - Students will describe properties of, define, give examples of, and/or apply to both real-world and mathematical situations:

- MA-7-4.1.1 Variables, expressions and equations as they relate to real-world situations
- MA-7-4.1.2 Functions using tables, graphs, and verbal rules
- MA-7-4.1.3 Coordinate (Cartesian) system/grid, ordered pairs, x and y axis, origin

Skills - Students will perform the following mathematical operations and/or procedures accurately and efficiently, and explain how they work in real-world and mathematical situations:

- MA-7-4.2.1 Combining like terms and simplifying numerical expressions
- MA-7-4.2.2 Solve simple equations and inequalities
- MA-7-4.2.3 Model one-step equations pictorially and concretely
- MA-7-4.2.4 Identify, create, and continue patterns (give an informal description for the continuance of the pattern and/or generalize patterns through a verbal rule)
- MA-7-4.2.5 Represent, analyze and generalize a variety of patterns with tables, graphs, and words
- MA-7-4.2.6 Translate words into expressions, use equations to model everyday situations

Relationships - Students will show connections and how connections are made between concepts and skills, explain why procedures work, and make generalizations about mathematics in meaningful ways for the following relationships:

- MA-7-4.3.1 How tables, graphs, pattern verbal rules and equations relate to each other
- MA-7-4.3.2 How the change in one quantity affects a change in another quantity (e.g. in tables/graphs)